

Naval Health Research Center

DTIC FILE COPY

AD-A204 013

2

DETERMINANTS AND OUTCOMES OF COLLECTIVE ORGANIZATIONAL CLIMATE AMONG SHIPBOARD INDEPENDENT DUTY HOSPITAL CORPSMEN

DTIC
ELECTE
FEB 08 1989
S D CS

D. S. NICE
T. P. STEELE

REPORT NO. 88-47

Approved for public release: distribution unlimited.

NAVAL HEALTH RESEARCH CENTER

P.O. BOX 85122
SAN DIEGO, CALIFORNIA 92138

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND



89

2

8

01

DETERMINANTS AND OUTCOMES OF COLLECTIVE ORGANIZATIONAL CLIMATE
AMONG SHIPBOARD INDEPENDENT DUTY HOSPITAL CORPSMEN

D. Stephen Nice, Ph.D.
and
Timothy P. Steele, Lt, MSC, USN

Health Services Research Department
Naval Health Research Center
P.O. Box 85122
San Diego, CA 92138-9174

Report 88-47, was supported by the Naval Medical Research and Development Command, Department of the Navy under Work Unit No. 65152N M0106.001.6002. The views expressed are those of the authors and do not reflect the official policy or position of the Department of the Navy, Department of Defense, or the U.S. Government. The data presented in this report were collected in 1985. The authors gratefully acknowledge the assistance of Lt Thomas Hilton and Susan Hilton during different phases of this research.



Accession For	
NTIS CRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution /	
Availability Codes	
Dist	Availability or Special
A-1	

Summary

Problem

The shipboard independent duty hospital corpsman (IDC) performs a variety of complex medical department functions within the organizational context of the ship. Although this context may substantially affect IDC job-related attitudes and behaviors, little is known about the shipboard organizational climate and its potential impact on IDCs.

Objective

The purpose of this study was to define aggregate organizational climates in which IDCs function aboard ship and identify determinants and outcomes of these climates.

Approach

All shipboard IDCs serving as senior medical department representatives (N=415) were surveyed regarding climate perceptions, job satisfaction, and reenlistment intent. The executive officers completed a performance-related questionnaire.

Results

Across all Navy ships in the study, three general collective climate profiles were identified and were assigned the following labels to reflect the composite factor structures: Facilitative, Constrained, and Impoverished. Although modest, but statistically significant, associations were found between background/operational factors such as paygrade (E-6 vs. E-7/8), deployment status, fleet, and ship type (surface vs. submarine) and climate, stronger positive associations were present between Facilitative climate perceptions and organizationally relevant outcomes such as job satisfaction, performance, and intention to reenlist.

Conclusions

The shipboard organizational context exerts an important influence on the ability of the IDC to perform his duties. Facilitative shipboard environments, which are characterized by IDCs as having low Conflict and Ambiguity, high Leader Facilitation, and high Autonomy, are associated with higher levels of job satisfaction, performance, and reenlistment intent. Facilitative climates could be promoted through appropriate Commanding Officer and Executive Officer orientation and strong Navy medical department support.

DETERMINANTS AND OUTCOMES OF COLLECTIVE ORGANIZATIONAL CLIMATE
AMONG SHIPBOARD INDEPENDENT DUTY HOSPITAL CORPSMEN

D. Stephen Nice, Ph.D.
and
Timothy P. Steele, Lt, MSC, USN

Naval Health Research Center
San Diego CA

The shipboard independent duty hospital corpsman (IDC) is the senior medical department representative aboard the majority of U.S. Navy ships. In this position, he is responsible for the performance of a variety of complex medical department functions within the organizational context of the operational forces afloat. Although this organizational context, or climate, may substantially affect IDC job related attitudes and behaviors, little is known about the shipboard climate and its potential impact on IDCs.

Climate generally refers to an individual's cognitively based description of psychologically meaningful influences in the work environment (Jones, 1984). As Jones and James (1979) point out, existing treatments of climate generally share the assumptions that climate: (a) refers to the individual's cognitively based description of the situation; (b) involves a psychological processing of specific perceptions into more abstract depictions of the psychologically meaningful influences in the situation; (c) tends to be most closely related to situational characteristics that have relatively direct and immediate ties to individual experience; and (d) is multidimensional, with a central core of dimensions that apply across a variety of situations (though additional specific dimensions might be needed to better describe particular situations).

In a survey of 4,315 Navy enlisted personnel aboard 20 ships, Jones and James (1979) identified the following six dimensions of climate: (a) Conflict and Ambiguity, (b) Job Challenge, Importance, and Variety, (c) Leader Facilitation and Support, (d) Workgroup Cooperation, Friendliness, and Warmth, (e) Professional Esprit de Corps, and (f) Job Standards. Although these dimensions appeared relatively robust, necessary levels of homogeneity were found only at the lower levels of the organization. In general, there was greater similarity of perception for similar divisions from different ships than for dissimilar divisions from the same ship.

Although James (1982) has argued that the individual is the relevant unit of analysis for a theory of climate, he also concludes that aggregate climate perceptions may provide a powerful explanatory and predictive tool. Joyce and Slocum (1984) have explored the utility of aggregate climates which are based on agreement of climate perceptions. These collective climates are developed through numerical taxonomic methods which cluster individuals for whom the situation has common stimulus value (Pearlman, 1980).

Because collective climates do not assume a particular basis for aggregation, such as work groups, regions, or divisions, they appear

particularly well suited to the study of IDCs who frequently function as the sole health care provider aboard ship. The purpose of the present study, therefore, was to employ the collective climate approach to define the aggregate organizational climates or perceptual environments in which IDCs function aboard ship. In addition, this study was designed to assess organizational and personal factors which affect membership in collective climates and to determine the relationship between climate configurations and organizational outcomes such as job satisfaction, performance, and reenlistment intentions.

Method

Subjects

The initial sample in this Navy-wide study included all shipboard IDCs who were serving as senior medical department representatives (N=415) in 1985. A total of 356 (86%) IDCs responded to the survey. The mean age of the respondents was 34 years and paygrade was approximately evenly divided between E-6 and E-7.

Measures

The measures used in this study represent a subset of a larger protocol administered during two separate mail-outs. General demographic and background information was also collected.

Job Satisfaction. General job satisfaction was assessed using the Hackman and Oldham (1974) three-item measure. Response alternatives ranged from 1 (very dissatisfied) through 5 (very satisfied). Scale scores were computed by averaging responses to the three items. Cronbach's alpha, an index of internal consistency, was .72.

The specific satisfactions subscales of the Job Diagnostic Survey (Hackman and Oldham, 1975) were used to assess levels of satisfaction with pay, security, social, supervisory, and growth satisfaction. The same response format and scale scoring methods used for general job satisfaction were used for specific satisfactions. Cronbach's alpha ranged from .63 to .82.

Performance. Ratings of job performance were obtained with a 51-item questionnaire which was administered to the Executive Officer of each IDC. The items were presented in a 7-point Likert scale format with the following verbal anchors: 1 (needs improvement), 3 (meets expectations), 5 (exceeds expectations), and 7 (superior). Ratings were averaged to create a scale score (alpha = .98). A more detailed description of the performance appraisal instrument can be found in Hilton, Nice, and Hilton (1986).

Intent to Reenlist. Reenlistment intent was assessed with two items which addressed the likelihood of reenlisting for another term and the likelihood of making the Navy a career. Each item was assessed on a 5-point scale which ranged from "very unlikely" to "very likely." Item responses were averaged to create a scale score (alpha = .73).

Organizational Climate Questionnaire. The organizational climate questionnaire consisted of 97 items which were patterned after Jones and James (1979) to describe relatively specific aspects of the workplace subsumed under three major climate variable categories: (a) Job and Role Characteristics, (b) Leadership Characteristics, and (c) Subsystem and Organizational Characteristics. Descriptive measures of workgroup characteristics were not included in this study because 41% of the shipboard Medical Department staffs surveyed consisted of only one hospital corpsman -- the IDC; another 40% were comprised of the IDC and one assistant. As shown in Table 1, the individual items represented 23 a priori composites which have been shown to be psychologically meaningful measures of the work environment (Jones and James, 1979). Each composite consisted of two to seven items which were averaged to provide composite scores. Composite reliabilities, estimated by Cronbach's alpha, ranged from .57 to .92.

Derivation of Collective Climates

Identifying Components of Climate. A principal components analysis of the 23 a priori composites produced five components with eigenvalues > 1.0 , accounting for 68 percent of the variance. Results were evaluated using both orthogonal and oblique rotations. Orthogonal rotation was selected as the appropriate final solution because (a) the intercorrelations among composites loading highest on each factor were not large ($\bar{r} = .16$) and (b) it provided the most interpretable factor matrix (i.e., fewer salient multiple factor loadings for all composites). Table 2 presents the rotated factor matrix. Scores for the five components were computed using the regression method (Harmon, 1967). Table 3 provides reliability coefficients and intercorrelations of all composite scales described.

Formation of Collective Climates. Using a series of hierarchical and nonhierarchical cluster analyses, relatively homogenous groups of shipboard IDCs were identified with similar profiles on the five climate components. The reader is referred to Joyce and Slocum (1982, 1984) for a more detailed discussion of the cluster analysis methods employed here. The SPSSX (Norusis, 1985) Cluster Analysis program (agglomerative hierarchical analysis) using Ward's (1963) method was employed to determine the appropriate number of climates and to obtain the initial climate centroids. Following the cluster selection guidelines described by Ward and Hook (1963), three initial climates were identified. Because the climates obtained using the hierarchical method were not optimal (due to step dependent case assignment), nonhierarchical clustering procedures were next used to obtain a refined final solution.

The climate centroids obtained using the hierarchical clustering procedure provided the initial cluster centers for the SPSSX (Norusis, 1985) Quick Cluster program. This program reassigns each case to the nearest cluster center and then immediately updates cluster centers to reflect each successive assignment until all cases are assigned. Cluster centers obtained from each iteration of this program were used as initial centers in each successive iteration until the assignment of each IDC to a given climate was stable.

TABLE 1

CLIMATE COMPOSITE VARIABLES

Job and Role Characteristics	
Role ambiguity -	Extent job behavioral expectations are unclear.
Role conflict -	Extent incompatible, competing demands are made on the IDC.
Role overload -	Extent there is too much work to do in the time available.
Job autonomy -	Extent of opportunities for job related independent thought and action.
Job importance -	Extent the IDC feels his job is important.
Job challenge -	Extent the IDC feels his job is difficult and challenging.
Job variety -	Extent the job involves work on different projects and activities.
Job stress -	Extent the job causes feelings of tension and worry.
Leadership Characteristics	
Trust -	Extent XO trusts performance and judgement of subordinates.
Support -	Extent XO respects subordinates and is responsive to concerns.
Work facilitation -	Extent XO provides assistance for getting the job done.
Goal emphasis -	Extent XO serves as a performance model and emphasizes challenging goals.
Subsystem and Organizational Characteristics	
Openness of expression -	Extent command is open to questions, new ideas, and change.
Inter-departmental conflict -	Extent conflict, lack of cooperation, and poor communication exists among departments.
Inconsistent application of command policies -	Extent command policies and objectives are inconsistently communicated and applied.
Management awareness -	Extent command is informed and responds to needs and problems of IDC.
Organizational image -	Extent of positive image of command among crew members and the fleet.
Ambiguity of authority hierarchy -	Extent channels of formal authority are poorly defined within the command.
Officer cooperation -	Extent of cooperation and understanding from officers among the crew.
Fairness of rewards -	Extent rewards are fair and tied to performance.
Centralization of decision-making -	Extent other authority (vice the XO) decides medical department operations.
Professional conflict -	Extent of conflict between medical department priorities and command or line priorities.
Work constraints -	Extent personnel, equipment, time resources are inadequate.
Medical support -	Extent of support to shipboard medical department by shore-based medical/dental facilities and personnel.

TABLE 2

COMPONENTS OF PSYCHOLOGICAL CLIMATE FOR SHIPBOARD INDEPENDENT DUTY CORPSMEN

Composites	No. of Items	Alpha	Component Loadings ^a				
			1	2	3	4	5
<u>Conflict & Ambiguity:</u>							
Inter-departmental conflict	4	.81	.84				
Inconsistent application of policies	5	.77	.78				
Professional conflict	5	.79	.76				
Openness of expression	4	.77	-.74				
Role conflict	6	.70	.71				
Management awareness	4	.73	-.68				
Organizational image	3	.72	-.68				
Ambiguity of authority hierarchy	2	.71	.67				
Fair rewards	2	.72	-.64				
Officer cooperation	3	.70	-.63				
Role ambiguity	6	.76	.63	-.40			
<u>Job Autonomy:</u>							
Job autonomy	5	.78		.75			
Centralization of decision-making	7	.62		-.72			
Job upward influence	3	.58	-.44	.63			
Leader trust	3	.69		.54	.52		
<u>Leader Facilitation & Support:</u>							
Leader goal emphasis	4	.68			.78		
Leader work facilitation	3	.67			.77		
Leader support	6	.92		.45	.65		
<u>Job Stressors:</u>							
Work Constraints	2	.48				.74	
Job stress	5	.80				.63	
Role overload	5	.62	.54			.54	
Medical support to fleet	7	.69				.47	
<u>Job Challenge, Importance & Variety:</u>							
Job challenge	3	.59					.80
Job importance	3	.68					.74
Job variety	2	.53					.40

^a Only loadings $\geq |.40|$ are reported.

TABLE 3
RELIABILITY COEFFICIENTS^a AND INTERCORRELATIONS^b
OF ORGANIZATIONAL CLIMATE COMPONENTS AND OUTCOME VARIABLES

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Conflict & ambiguity	—												
2. Job autonomy	.00	—											
3. Leader facilitation	.00	.00	—										
4. Job stressors	.00	.00	.00	—									
5. Job challenge, importance, and variety	.00	.00	.00	.00	—								
6. Pay satisfaction	-.23	-.07	-.02	-.12	-.02	.82							
7. Security satisfaction	-.16	.32	.00	-.19	.12	.31	.63						
8. Social satisfaction	-.25	.05	-.04	-.21	.18	.19	.41	.71					
9. Supervisory satisfaction	-.38	.40	.21	-.10	.05	.19	.42	.36	.81				
10. Growth satisfaction	-.23	.18	-.02	-.23	.29	.20	.54	.65	.48	.76			
11. General job satisfaction	-.38	.25	.08	-.32	.30	.22	.41	.42	.36	.53	.72		
12. Job performance	-.15	.36	.09	-.02	.06	-.09	.19	.04	.42	.11	.16	.98	
13. Reenlistment intentions	-.12	.15	.05	-.17	.11	.15	.26	.18	.18	.26	.29	.10	.73

^a Reliability coefficients (Cronbach's alpha) are displayed on the main diagonal.

^b $p < .01$ for r_s of .11 or greater

Assessment of the Adequacy of Climate Clusters. Discrimination and internal consistency have been described in the climate literature as reasonable criteria for assessing the adequacy of collective climates (cf. Jones and James, 1979; Joyce and Slocum, 1984). Two methods designed to assess whether the present empirically derived climates met these criteria were used in the present study. First, one-way analyses of variance (ANOVA) were conducted to determine if significant differences existed between climate clusters on each of the five climate components. As shown in Table 4, all ANOVA F ratios proved to be significant.

TABLE 4
ANALYSES OF COLLECTIVE CLIMATE DISCRIMINATION AND RELIABILITY

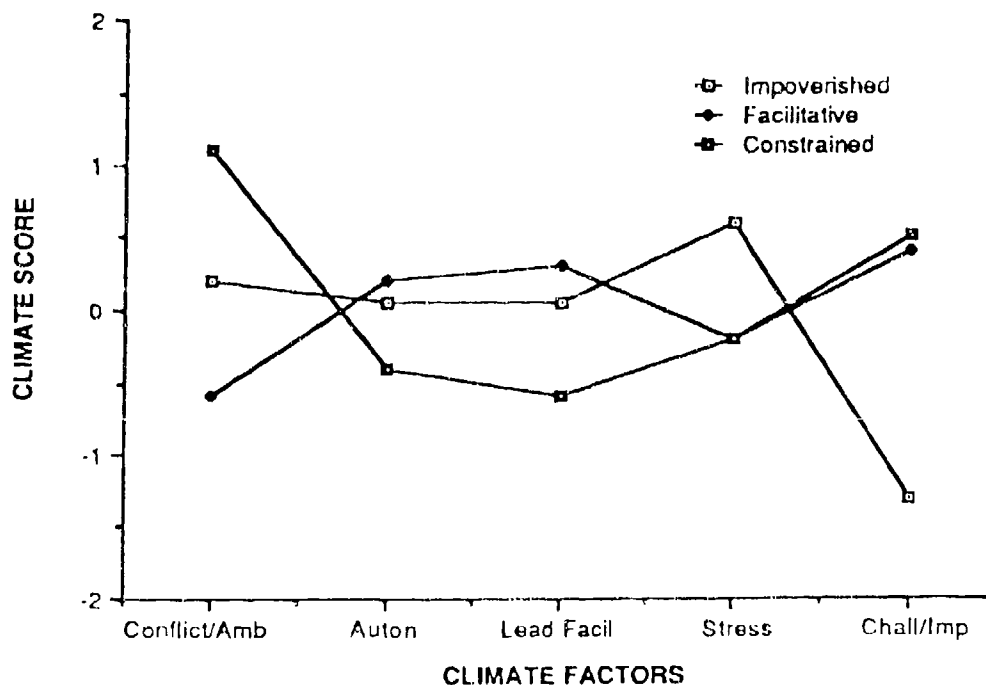
Climate Component	F(2,353)	p	R ²	r ^a _{IC}
1. Conflict and Ambiguity	153.28	.000	.47	.58
2. Job Autonomy	7.07	.001	.04	.05
3. Leader Facilitation	26.98	.000	.13	.19
4. Job Stressors	20.28	.000	.10	.14
5. Job Challenge, Importance and Variety	172.60	.000	.49	.61

^a Intraclass correlation coefficients

The second method of assessing cluster adequacy involved calculating the intraclass correlation for each climate component using the ANOVA results (Bialock, 1972). As a measure of the degree of homogeneity within each cluster relative to total component variability, the intraclass correlation provides an estimate of interrater reliability (James, 1982). The resulting intraclass correlations for each climate component ranged from .05 to .61 (see Table 4). With the exception of Job Autonomy, these values were well within the range of correlations obtained in previous collective climate research where the median reported value was .12 (Joyce and Slocum, 1984).

Collective Climate Profiles. Interpretation and labeling of the final cluster results were based on the collective climate profiles presented in Figure 1. Climate component scores were scaled as z-scores ($\bar{x} = 0$, $SD = 1$). Cluster 1 was labelled "Constrained" because of relatively high scores on Conflict and Ambiguity and relatively low scores on Job Autonomy and Leader Facilitation. Cluster 2 was titled "Impoverished" primarily because of an extremely low comparative score on Job Challenge, Importance and Variety. This cluster was also somewhat high on Job Stressors. Finally, Cluster 3, named "Facilitative", was characterized mainly by comparatively low Conflict and Ambiguity and high Job Challenge, Importance and Variety. Clearly, of the three described, the Facilitative climate represents the organizational climate theoretically most conducive to both productivity and satisfaction. Approximately one-half of the IDCs in the present study worked in this positively described shipboard environment.

COLLECTIVE CLIMATE PROFILES



Results

Correlates of Collective Climate

A multivariate analysis of variance (MANOVA) was conducted to identify individual, organizational and operational factors associated with membership in a given collective climate. Dependent variables were education, paygrade (First Class, Chief), number of tours as an SMDR, warfare qualified (no, yes), number of corpsman assistants, ship type (surface, submarine), fleet (Pacific, Atlantic), and ship's deployment status (deployed, not deployed). All dichotomous nominal variables were dummy coded. The independent variable was climate membership. Results of the MANOVA revealed a significant multivariate effect ($F[16,596] = 1.84, p = .023$).

A multiple discriminant analysis (MDA) using the same independent and dependent variables as in the MANOVA was performed to identify the dimensions underlying the multivariate differences between climates (Borgen and Seling, 1978). Two significant functions were found using backward, stepwise elimination of dependent variables with a probability of F -to-remove less than .10 (Huberty, 1984). An examination of the loadings and the group means for function one in Table 5, reveals that being a First Class corpsman and/or being deployed were significantly associated with a Constrained climate. Conversely, being a Chief and/or not being deployed were associated with membership in a Facilitative climate. Membership in an Impoverished climate appears to be a function of ship type and fleet. That is, IDCs aboard submarines and/or serving in the Atlantic Fleet perceive a more Impoverished collective climate.

TABLE 5

RESULTS OF MDA ANALYSIS OF FACTORS ASSOCIATED WITH IDC COLLECTIVE CLIMATES

CANONICAL DISCRIMINANT FUNCTIONS

Function	Cumulative % of Variance	Canonical Correlation	: After : Function : Removed	Wilk's Lambda	Chi- Squared	D.F.	Signif.
1	60.95	.21	: 0	.9283	22.591	8	.004
2	100.00	.17	: 1	.9712	8.866	3	.031

Correlates:	Function loadings ^a		Collective Climates:	Group centroids	
	1	2		1	2
Paygrade	.69	-.12	Constrained Climate	.2841	.2055
Deployment Status	.64	.33	Impoverished Climate	-.0514	.3290
Ship Type	.13	.73	Facilitative Climate	.1768	-.0409
Fleet	-.33	.66			

^a Loadings are correlations with discriminant functions.

Collective Climates and Organizational Outcomes

As noted in the introduction, a major objective of this study was to determine the relationship between climate configurations and salient organizational outcomes. To assess these relationships, three one way ANOVAs were conducted with job satisfaction, performance, and intent to reenlist as the respective dependent variables and collective climate membership as the independent variable. As can be seen in Table 6, all three ANOVAs were statistically significant. Duncan's multiple range tests for all possible pairwise comparisons revealed that mean scores from the Constrained and Impoverished climates were significantly different ($p < .05$) from the means for the Facilitative climate for all three dependent variables. No other comparisons were statistically significant. As one would expect given relatively low Conflict and Ambiguity, moderate degrees of Job Autonomy and Leader Facilitation, low levels of Job Stressors, and comparatively high Job Challenge and Importance, the Facilitative climate is clearly most positively associated with desired organizational outcomes.

TABLE 6
RELATIONSHIPS BETWEEN ORGANIZATIONAL OUTCOME VARIABLES
AND COLLECTIVE CLIMATE MEMBERSHIP

Outcome Variables	F(2,353) ^a	Signif.	R ²	Collective Climate Means		
				Constrained Mean (SD)	Impoverished Mean (SD)	Facilitative Mean (SD)
Job Satisfaction	60.51	.000	.26	3.17 (0.94)	2.94 (0.84)	4.00 (0.73)
Performance	7.99	.000	.05	4.96 (1.46)	5.26 (1.23)	5.62 (1.22)
Intent to reenlist	9.41	.000	.05	3.84 (1.23)	3.81 (1.28)	4.35 (1.00)

^a Degrees of freedom for performance were (2,328) due to missing data.

Additional organizational outcomes of interest in this study were specific satisfactions (Hackman and Oldham, 1975) which can provide useful diagnostic information for organizational change efforts. To assess the relationship between collective climate membership and specific satisfactions, a MANOVA was conducted using pay, security, social, supervision, and growth satisfactions as the dependent variables and climate membership as the independent variable. The MANOVA indicated a significant multivariate effect ($F[10,648] = 11.61, p < .001$). A follow up MDA was conducted and revealed two significant discriminant functions (see Table 7). Function one appeared to be characterized most by satisfaction with supervision; function two indicated primarily a growth factor. Examination of the group centroids indicated that satisfaction with supervision was highly negatively associated with a Constrained climate and positively associated with a Facilitative climate. This relationship is consistent with the fact that the most salient characteristics of the Constrained climate were comparatively high Conflict and Ambiguity and low Leader Facilitation (Figure 1). Conversely, the Facilitative climate profile indicated relatively low Conflict and Ambiguity and somewhat above average Leader Facilitation. As the scale was

operationalized in this study, these findings support the validity of the derived collective climates and indicate that attention to supervisory improvements may be indicated.

Satisfaction with growth was positively related with a Facilitative climate but highly negatively related with an Impoverished climate. This finding too provides support for the validity of the empirically derived collective climates. The Impoverished climate was primarily characterized by perceptions of extremely low Job Challenge and Importance and somewhat high Job Stressors (due mainly to inadequate resources). Certainly, satisfaction with growth would be inhibited in such a working environment.

TABLE 7

RESULTS OF MDA ANALYSIS OF SPECIFIC SATISFACTIONS AND IDC COLLECTIVE CLIMATES

CANONICAL DISCRIMINANT FUNCTIONS

Function	Cumulative % of Variance	Canonical Correlation	: After : Function : Removed	Wilk's Lambda	Chi- Squared	D.F.	Signif.
1	74.76	.46	: 0	.71851	107.44	10	.000
2	100.00	.29	: 1	.9153	28.75	4	.000

Discriminant Functions

Specific Satisf:	Loading ^a		Coefficient		Collective Climates:	Group centroids	
	1	2	1	2		1	2
Supervision	.90	.28	.95	-.09	Constrained Climate	-.7092	-.0851
Pay	.45	.05	.37	-.09	Impoverished Climate	-.0320	-.6394
Security	.38	.31	.09	-.20	Facilitative Climate	.3824	.3445
Growth	.17	.97	-.31	1.08			
Social	.17	.61	-.01	.06			

^a Loadings are correlations with discriminant functions.

Discussion

In many ways, the psychological climate factors derived from the shipboard IDCs were consistent with those previously identified in a heterogeneous sample of Navy shipboard personnel (Jones and James, 1979). Factors such as Leader Facilitation and Support; Job Challenge, Importance, and Variety; and Conflict and Ambiguity, for example, emerged in both studies. In the present study, however, composites which loaded on the Jones and James (1979) factors labeled Professional and Organizational Esprit, and Job Standards were generally subsumed under Conflict and Ambiguity and Job Stressors, respectively. This difference was generally attributable to content differences in the psychological climate questionnaires used in the two studies. Although the psychological climate questionnaire used in this study was patterned after the work of Jones and James (1979), overall space limitations and pre-study protocol development interviews with shipboard IDCs introduced a number of modifications. Items which addressed workgroup characteristics, for example, were not included in the present study because shipboard IDCs function without peers and often without coworkers. The salience of this aspect of shipboard health care delivery was reflected in the emergence of a separate factor labeled Job Autonomy. While other Navy personnel have empirically defined Job Autonomy within the context of Job Challenge, Importance, and Variety (Jones and James, 1979), the shipboard IDC perceives Job Autonomy as a more discrete dimension of the work environment.

Although the assessment of climate factors among individuals, who generally function without coworkers, across hundreds of discrete operational units represents a dramatic departure from the more traditional applications, the collective climate methodology empirically defined three climates which demonstrated sufficient psychometric properties and were meaningfully associated with important organizational criteria. The Constrained climate was characterized by relatively high levels of Conflict and Ambiguity and relatively low scores on Job Autonomy and Leader Facilitation. This climate was somewhat more frequently described by IDCs who were not Chief Petty Officers, and/or IDCs aboard ships which were deployed. Enhanced perceptions of Conflict and Ambiguity, as well as reduced perceptions of Job Autonomy and Leader Facilitation among First Class Petty Officers is probably reflective of the differential professional and social status of First Class and Chief Petty Officers aboard ship. These differences are particularly salient during deployment as they affect messing and berthing arrangements and the attendant social networks for cooperation and resource mobilization or coordination.

Similarly, the increased tempo of operations during deployment may increase perceptions of a more Constrained climate. Although the autonomy in IDC patient care increases during deployment, many other medical responsibilities must frequently be subordinated to the overall shipboard mission requirements (Nice and Hilton, 1986). Deployment may further increase IDC perceptions of Constrained climate through isolation from a primary reference group, the medical community. Because reference groups define many aspects of social identity, the availability of reference others provides an important balance between identification and differentiation (Hewitt, 1984; Shibutani, 1955). During deployment, the absence of a medical reference group, as well as increased pressures toward identification with the larger operational unit, may engender perceptions of increased Conflict

and Ambiguity and reduced Job Autonomy and Leader Facilitation. It is also interesting to note that more junior IDCs, and IDCs aboard ships which are deployed, experience significantly longer workweeks (Nice and Hilton, 1986). This finding provides convergent support for increased perceptions of Constrained climate among IDCs who are First Class Petty Officers and/or are deployed.

Conversely, IDCs who were Chief Petty Officers and/or IDCs aboard ships which were not deployed were more likely to perceive a more Facilitative climate. Because Facilitative and Constrained climates were characterized by essentially reciprocal profiles on Conflict and Ambiguity, Job Autonomy, and Leader Facilitation, the inverse associations between these climate perceptions and the variables of paygrade and deployment were believed to reflect a common set of underlying processes.

Perceptions of an Impoverished climate, characterized by high Job Stress and low Job Challenge, Variety, and Importance were significantly associated with IDCs serving aboard submarines, rather than surface ships, and/or serving in the Atlantic fleet versus the Pacific fleet. Although the distribution of the workload of IDCs aboard submarines at sea is somewhat different than that of IDCs aboard surface ships (Nice and Hilton, 1986), the associations between Fleet, Ship Type, and perceptions of Impoverished climate are difficult to interpret. In general, the relationships between individual, organizational, and operational factors and collective climate perceptions were relatively modest and should be regarded as tentative until replicated.

The relationships between collective climate and organizationally relevant criteria, on the other hand, were more robust. The relatively strong association between collective climate and general job satisfaction is consistent with previously reported studies of organizational climate and job satisfaction (Batlis, 1980; Lawler, Hall, and Oldham, 1974). More detailed analyses of this relationship in the present study, however indicated that specific aspects of satisfaction formed two empirically defined factors (discriminant functions) which were differentially related to collective climate perceptions.

Although both satisfaction factors were positively associated with a Facilitative climate, the first factor, primarily characterized by satisfaction with supervision, was also highly negatively associated with a Constrained climate. A Constrained climate was typified primarily by high Conflict and Ambiguity and low Leader Facilitation. The second satisfaction factor, on the other hand, was characterized by satisfaction with growth and was highly negatively associated with an Impoverished climate which was primarily defined by low Job Challenge and Importance and high Job Stressors (due mainly to inadequate resources). These findings support and extend previously reported associations between collective climate and satisfaction with both supervision and promotion (Joyce and Slocum, 1984).

The results of the present study also demonstrated significant relationships between collective climate perceptions and job performance and intent to reenlist. These findings are consistent with previously reported associations between organizational climate and performance (Jones and James, 1979) and propensity to leave (Batlis, 1980).

In the present investigation, individuals who performed their medical department duties within a Facilitative shipboard climate generally performed better and indicated a greater intent to reenlist than those who functioned within Constrained or Impoverished climates. Schneider (1975) has suggested that increased performance under positive organizational climates is not due to an increased level of motivation, per se, but an increase in the variance of behavior which results in increased overall levels of performance. According to Schneider (1975), this may occur because environments which suppress individual differences have their greatest effect on the most able simply because the range of possible behavior for those who are more able is greater.

These findings underscore the critical importance of the shipboard organizational environment in which medical department personnel are required to function. Those Facilitative environments in which there was relatively low Conflict and Ambiguity (e.g., high interdepartmental cooperation, consistent application of command policies, minimal conflict between medical priorities and line priorities), high Leader Facilitation (e.g., Executive Officer support for medical department functions), and high Autonomy (e.g., opportunity for job-related independent thought and action), appeared to provide an opportunity for better shipboard medical support. The presence of these Facilitative environments may reflect commands in which the Commanding Officer and the Executive Officer provide unambiguous leadership in the integration of medical and operational priorities while recognizing and protecting the distinctive mission requirements of the shipboard medical department.

In addition, the potential importance of a medical reference group for the maintenance of social and professional identity during tours of independent duty aboard ship suggests the necessity of a strong, continuous support system from all echelons of the Navy medical community. This support, both proximal (e.g., squadron and group medical officers, force and fleet medical officers, medical treatment facilities) and distal (Navy Surgeon General, Navy Medical Command, Health Sciences Education and Training Command), may minimize the potential professional isolation of independent duty and facilitate the sea-shore rotation process. Visible Navy medical department support, combined with appropriate prospective orientation procedures, could also serve to acquaint commanding officers and executive officers with particular shipboard medical department requirements and enhance the development of more Facilitative organizational climates for independent duty hospital corpsmen serving as senior medical department representatives aboard ship.

REFERENCES

- Batlis, N.C. (1980). The effect of organizational climate on job satisfaction, anxiety, and propensity to leave. Journal of Psychology, 104, 233-240.
- Blalock, H.M. (1972). Social Statistics. New York: McGraw-Hill.
- Borgen, F.H. & Seling, M.J. (1978). Use's of discriminant analysis following MANOVA: Multivariate statistics for multivariate purposes. Journal of Applied Psychology, 63, 689-697.
- Hackman, J.R. & Oldham, G.R. (1974). The job diagnostic survey: An instrument for the diagnosis of jobs and the evaluation of job redesign projects (Tech. Rep. No. 4). Yale University, Department of Administrative Sciences.
- Hackman, J.R. & Oldham, G.R. (1975). Development of the job diagnostic survey, Journal of Applied Psychology, 60, 159-170.
- Harman, H.H. (1967). Modern factor analysis (2nd Ed.). Chicago: University of Chicago Press.
- Hewitt, J.P. (1984). Self and society: A symbolic interactionist social perspective. Allyn and Bacon, Inc. Boston MA.
- Hilton, T.F., Nice, D.S., & Hilton, S.M. (1986). The shipboard independent duty hospital corpsman: The optimal career pipeline (NHRC Tech. Rep. No. 86-19). Naval Health Research Center, San Diego, CA.
- Huberty, C.J. (1984). Issues in the use and interpretation of discriminant analysis. Psychological Bulletin, 95, 156-171.
- James, L.R. (1982). Aggregation bias in estimates of perceptual agreement. Journal of Applied Psychology, 67, 215-231.
- Jones, A.P. (1984). Organizational reward systems: Implications for climate. Motivation and Emotion, 8, 259-275.
- Jones, A.P. & James, L.R. (1979). Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. Organizational Behavior and Human Performance, 23, 201-250.
- Joyce, W.F. & Slocum, J. (1982). Climate discrepancy: Refining the concepts of psychological and organizational climate. Human Relations, 35, 951-972.
- Joyce, W.F. & Slocum, J. (1984). Collective climate: Agreement as a basis for defining aggregate climates in organizations. Academy of Management Journal, 27, 721-742.
- Lawler, E.E., III, Hall, D.T., & Oldham, G.R. (1974). Organizational climate: Relationship to organizational structure, process, and performance. Organizational Behavior and Human Performance, 11, 139-155.

- Nice, D.S. & Hilton, T.F. (1986). Job characteristics of shipboard independent duty corpsmen (NHRC Tech. Rep. No. 87-3). Naval Health Research Center, San Diego, CA.
- Norusis, M.J. (1985). SPSSX advanced statistics guide. New York: McGraw-Hill.
- Pearlman, K. (1980). Job families: a review and discussion of their implications for personnel selection. Psychological Bulletin, 33, 193-212.
- Schneider, B. (1975). Organizational climates: An essay. Personnel Psychology, 28, 447-479.
- Shibutani, T. (1955). Reference groups as perspectives. American Journal of Sociology, 60, 562-569.
- Ward, J.H., Jr. (1963). Hierarchical grouping to optimize an objective function. Journal of the American Statistical Association, 58, 236-244.
- Ward, J.H., Jr. & Hook, M.E. (1963). Application of a hierarchical grouping procedure to a problem of grouping profiles. Educational and Psychological Measurement, 23, 69-82.

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS None		
2a. SECURITY CLASSIFICATION AUTHORITY N/A			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) NHRC Report No. 88 - 47			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Naval Health Research Center		6b. OFFICE SYMBOL (If applicable) 40	7a. NAME OF MONITORING ORGANIZATION Commander, Naval Medical Command		
6c. ADDRESS (City, State, and ZIP Code) P.O. Box 85122 San Diego, CA 92138-9174			7b. ADDRESS (City, State, and ZIP Code) Department of the Navy Washington, DC 20372		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Navy Medical Research & Development Command		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8c. ADDRESS (City, State, and ZIP Code) Naval Medical Command National Capital Region Bethesda, MD 20814-5044			10. SOURCE OF FUNDING NUMBERS		
PROGRAM ELEMENT NO. 65152N		PROJECT NO. M0106	TASK NO. 001	WORK UNIT ACCESSION NO. 6002	
11. TITLE (Include Security Classification) (U) DETERMINANTS AND OUTCOMES OF COLLECTIVE ORGANIZATIONAL CLIMATE AMONG SHIPBOARD INDEPENDENT DUTY HOSPITAL CORPSMEN					
12. PERSONAL AUTHOR(S) D. Stephen Nice and Timothy P. Steele					
13a. TYPE OF REPORT Interim		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Year, Month, Day) 1988, Nov, 29	
15. PAGE COUNT					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
			Organizational climate Job performance Reenlistment intent		
			Collective climate Job satisfaction Hospital corpsman		
			Independent duty corpsman Shipboard health care delivery		
19. ABSTRACT (Continue on reverse if necessary and identify by block number) The shipboard independent duty corpsman (IDC) has the sole responsibility for the performance of a variety of complex medical department functions within the organizational context of the operational forces afloat. The purpose of this study was to employ the collective climate approach to define the aggregate organizational climates in which IDCs function aboard ship, and to assess the determinants and outcomes of climate perceptions. Across all Navy ships, three general collective climate profiles were identified-facilitative, constrained, and impoverished. Although these profiles were not strongly determined by background or operational factors, facilitative climates, characterized by low conflict and ambiguity, high leader facilitation, and high autonomy, demonstrated a significant positive relationship with job satisfaction, performance, and intent to reenlist.					
20. DISTRIBUTION AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED-UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL D. Stephen Nice			22b. TELEPHONE (Include Area Code) (619) 553-8463		22c. OFFICE SYMBOL 40